REMARKS

The abstract and specification have been amended in order to correct grammatical and idiomatic errors contained therein. No new matter has been added.

Enclosed herewith is a clean copy of a corrected Figure 4 in which the spelling of "polarization" has been corrected in the heading of the fourth column. Entry of this corrected Figure 4 is respectfully solicited.

In order to expedite the prosecution of the present application and respond to the formal rejections made by the Examiner, Claim 1 has been canceled and replaced by newly presented Claim 23 which more particularly points out and distinctly claims the subject matter which Applicants regard as the invention. The remaining claims have been amended in order to address formal defects contained therein. It is respectfully submitted that the currently presented claims contain no new matter and are cured of all formal defects.

Claim 1 has been rejected under 35 USC 102(b) as being anticipated by Hiroshima et al. Claims 1, 2 and 6-22 have been rejected under 35 USC 103(a) as being unpatentable over Faris in view of Yajima. Claims 1-5 have been rejected under 35 USC 103(a) as being unpatentable over Tsujikawa et al. Applicants respectfully traverse this ground of rejection and urge that the presently claimed invention is patentably distinguishable over the prior art cited by the Examiner.

The presently claimed invention is directed to a polarized light color filter having an incident light side and an emitted light side and to a video projector containing the polarized light color filter. The inventive polarized light color filter comprises, an order and at an angle to the incident light optical path, a first polarized light converting element provided adjacent the incident light side for selectively emitting polarized incident light thereon after either changing the plurality of the polarized incident light or leaving the plurality of the incident light unchanged according to a voltage applied to the first polarized light

converting element, a first polarization spectroscopic element comprising a first narrow band polarization spectroscopic element for reflecting only S-polarized light out of a first primary light corresponding to a first primary color, a second polarized light converting element for selectively emitting polarized incident light thereon after either changing the plurality of the polarized incident light or leaving the plurality of the incident light unchanged according to a voltage applied to the second polarized light converting element, a second polarization spectroscopic element comprising a second narrow band polarization spectroscopic element for reflecting only S-polarized light out of a second primary light corresponding to a second primary color, a third polarized light converting element for selectively emitting polarized incident light thereon, after either changing the plurality of the polarized incident light or leaving the plurality of the incident light unchanged according to a voltage applied to the third polarized light converting element, a third polarization spectroscopic element comprising a third narrow band polarization spectroscopic element for reflecting only S-polarized light out of a third primary light corresponding to a third primary color and control means for applying a voltage on a time-division basis to the first, second and third polarized light converting elements.

As discussed in the present specification, conventional polarized light colored filters as shown in Figure 1 of the present application typically have shortcomings in that a mechanical element is needed in order to rotate the disk-shaped filter which causes mechanical vibration of the front screen of the liquid crystal panel and thereby adversely affect the image on the screen. The ratios of the R-light, G-light and B-light in a period are predetermined according to the area ratios of these components in the transmission filter so that these ratios cannot be varied freely during a given period of time. Moreover, since switching among R-light, G-light and B-light is made through the mechanical rotation of

the disk-shaped filter, the rotating speed cannot be increased freely beyond the limit of the mechanical rotation and, lastly, since switching among R-light, G-light and B-light is made through the mechanical rotation of the disk-shaped filter, the ratio of the light transmission area for each of the filters corresponding to each of the lights cannot be increased freely, thereby forcing the utilization rate per quantity of light of the white light source to be maintained at a low level. The present invention was arrived at in order to overcome these problems.

The Hiroshima et al reference discloses a liquid crystal projector comprising a timing control device for outputting a predetermined timing signal synchronous with the horizontal scanning period of the video data, a projection light source for emitting a projection light, a color separation device coupled to the timing control device for separating the projection light into R, G and B components to output them in a time divisional manner on the basis of the timing signal, a liquid crystal light valve panel for displaying images respectively corresponding to the R, G and B components in a time divisional manner on the basis of the video data and the timing signal and for converting an output light incident from the color separation device through waves of a projection light corresponding to the displayed images and a projection lens for magnifying and projecting an output light from the liquid crystal light valve panel.

The presently claimed invention is similar to the disclosure of Hiroshima et al only with respect to the use of the polarized light converting element, Π cell, being employed. However, this reference does not disclose the use of a polarized light color filter which employs a narrow band polarization spectroscopic element for separating P-polarized light and S-polarized light from each other and for utilizing both P-polarized light and S-polarized light. Additionally, the Examiner states that Figure 6, Element 10B and Figure 1, Element 12 correspond to the polarized light color filter of

the present invention. However, Hiroshima et al discloses that Element 12 is a cathode ray tube and the filter 10B in Figure 6 has five elements while the currently presented Claim 26 requires at least 6. As such, it is respectfully submitted that the presently claimed invention clearly is patentably distinguishable over Hiroshima et al.

The Faris reference discloses a polarizing wavelength separating optical element in the form of a flat panel which causes each of a plurality of polychromatic optical beams from a source, entering at one surface and transmitted to the other surface, to be converted into beams circularly polarized and spectrally and spatially separated. The Examiner states that this reference fails to disclose that the first, second and third narrow-band polarization spectroscopic elements are capable of reflecting only the S-polarized light components of the primary colors. Applicants wish to additionally point out that the polarized wavelength separator of this reference is not designed to separate light on a time-divisional basis as required by the present claims. As such, the secondary reference cited by the Examiner must provide the motivation to one of ordinary skill in the art to make such a modification to the disclosure of the Faris reference.

The Yajima reference discloses an optical element which is suitable for a projection display apparatus. This reference was cited by the Examiner as disclosing a spectroscopic element capable of reflecting only S-polarized light components of the primary colors in a polarization conversion device for a projection display apparatus. However, like the previously discussed reference, this reference has no disclosure with respect to the separation of light on a time-divisional basis and therefore cannot possibly disclose the presently claimed invention. As such, it is respectfully submitted that the presently claimed invention is clearly patentably distinguishable over Faris in combination with Yajima.

The Tsujikawa et al reference discloses a single panel color projection LCD having a plurality of reflectors. This reference discloses that the efficiency of utilization of the light can be improved by using a polarized light color filter containing two polarized spectroscopic elements and a phase plate. Notwithstanding the obvious difference in construction between the light color filter of the present invention and that disclosed in Tsujikawa et al, there is no provision in Tsujikawa et al for separating the light into the primary colors on a time-divisional basis as required by the present claims. As such, it is respectfully submitted that the presently claimed invention is clearly patentably distinguishable over this reference also.

The Examiner is respectfully requested to reconsider the present application and to pass it to issue.

Respectfully submitted,

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Encl: Marked-Up Substitute Specification
Clean Substitute Specification
Replacement Abstract
Replacement Figure 4
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